REMARKS

The Examiner's continued attention to the present Application is greatly appreciated.

Claims 4 - 6 and 15 - 20 are pending in the present Application. Claims 15 - 20 have been allowed. Claim 4 was rejected under 35 U.S.C. § 112. In addition, Claims 4 - 6 were rejected under 35 U.S.C. § 103. To overcome the rejection under 35 U.S.C. § 112, Claim 4 has been amended to delete the limitation that the microwave sources are arranged so products travel between the microwave sources.

Moreover, Claim 4 has been amended to recite that "said first set of microwave sources includes one or more microwave sources which emit microwaves at a right angle to the axis of advance of products advancing through said tunnel and said second set of microwave sources includes one or more microwave sources which emit microwaves at a right angle to the axis of advance of products advancing through said tunnel". This amendment has been introduced to more clearly differentiate Applicant's invention from the microwave system of *Muller* which introduces microwaves at oblique angles to the advance of products traveling through a conditioning tunnel. Support for this amendment can be found in Figs. 2 and 4 which illustrate placement of magnatrons so as to emit microwaves at a right angle to the axis of advance of products and support can be found on Page 8, lines 15 - 17 which state that the available magnatrons are "at right angles to the axis of advance of the products being treated".

By the above amendments, Applicant has amended Claim 4 in order to overcome the rejection under 35 U.S.C. § 112 and 35 U.S.C. § 103. Accordingly, Claim 4 and its dependent Claims 5 and 6 are believed allowable. Reexamination, reconsideration and allowance of Claims 4 - 6 is requested.

Rejection Under 35 U.S.C. § 112

Claim 4 was rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement, specifically that the specification does not provide support for the products traveling from upline to downline through the tunnel so as to be positioned "between first and second sets of microwave sources so that microwave energy emanates from said microwave sources from a first side of set products and microwave energy emanates from said second microwave sources from an opposite side of said products".

Applicant agrees with the Examiner's conclusion. As illustrated in Figs. 2 and 4 and as explained in the specification of Page 16, line 21 - Page 17, line 7, the preferred embodiment of the tunnel includes a first stage illustrated in Fig. 2 having openings 130 formed in the bottom wall of the conditioning tunnel for directly connecting to microwave generators, and a second stage having openings 140 formed in the top wall of the conditioning tunnel for directly connecting to microwave generators. The first set of microwave generators are directly connected to the bottom wall of the conditioning tunnel and the second set of microwave generators are directly connected to the upper wall of the conditioning tunnel. However, the microwave generators are not directly opposite one another to allow for products traveling from upline to downline through the tunnel to be positioned between the first and second sets of microwave sources. To correct this deficiency, Applicant has deleted the language within Claim 4 specifying that the first and second sets of microwave sources are arranged so that products traveling upline to downline through the tunnel are positioned between the first and second sets of microwave sources.

As a result of the deletion of this language, the rejection under 35 U.S.C. § 112 is believed to have been overcome.

Rejection Under 35 U.S.C. § 103

In the recent Office Action, Claims 4 and 5 were rejected under 35 U.S.C. § 103 as being unpatentable over *Akutsu et al.,* (U.S. Patent No. 4,809,596) in view of *Lipoma* (U.S. Patent No. 3,718,082) and *Muller* (U.S. Patent No. 3,402,277). Claim 6 was rejected under 35 U.S.C. § 103 as being unpatentable over *Akutsu,* in view of *Lipoma*, *Muller*, and *Ruozi* (U.S. Patent No. 6,039,991).

Respectfully, Applicant disagrees that these combinations of references would suggest a quadrilateral conditioning tunnel including microwave sources directly connected to opposing sidewalls. Notwithstanding, Applicant has amended Claim 4 to more clearly differentiate the present invention from the prior art. To this end, Applicant has included the limitation that the microwave sources connected to opposing sidewalls "emit microwaves at a right angle to the axis of advance of products advancing through the tunnel". This feature is not described in the cited references. Moreover, this construction is directly contrary to the structure described in *Muller*.

Applicant's Invention

Applicant's invention of Claims 4 - 6 is directed to a conditioning system for sterilizing products including a tunnel having two pairs of parallel sidewalls to form a tunnel having a substantially quadrilateral cross-section. The conditioning system further includes a plurality of pressure sealing doors to seal at least one stage to form a gaseous tight seal pressurizable stage, as well as pressurizing means for controlling the pressure of said pressurizable stage for increasing the pressure to a sufficient level to prevent seal packages from bursting upon application of heat. The conditioning system is provided with a heating means including first and second sets of microwave sources wherein a first set of microwave sources is directly connected to a first sidewall and a second set of microwave sources is directly connected to a second opposing sidewall so that microwave energy emanates from said first microwave sources from a first side of said products and microwave energy emanates from said second microwave sources from an opposite side of said products.

Applicant has also amended Claim 4 to include the limitation that the first and second sets of microwave sources emit microwaves at a right angle to the axis of advance products advancing through the tunnel. Disadvantageously, positioning the microwave sources at right angles increases microwave coupling in corresponding hot spots within the microwave chamber. However, more importantly, the positioning of the microwave sources at right angles to the advance of products within a quadrilateral tunnel enables one to mathematically model standing wave patterns within the exposure cavity. As explained in greater detail below, and as explained in the Supplemental Declaration of Jeffrey Mackay submitted herewith, this is not possible within the prior art microwave tunnels, particularly *Muller*.

Akutsu

Akutsu discloses a product conditioning system including a pressurized chamber employing infrared heaters in a non-pressurized chamber having microwave sources or other heaters. As considered by the Examiner, *Akutsu* does not disclose any specific cross-section of configuration of the product conditioning unit. Moreover, the Examiner concedes that *Akutsu* does not appear to disclose the connection of microwave sources with the conditioning tunnel.

Lipoma

Lipoma describes a product conditioning system including a pressurizable tunnel which "may be rectangular or circular or elliptical or any other desired shape". (Col. 56, lines 10 - 15). *Lipoma* does not state which of these configurations would be preferable or present any reasons supporting this selection of any particular tunnel configuration.

With reference to the figures of *Lipoma*, the references seem to suggest a tunnel having only a single microwave source which passes through one sidewall of the conditioning tunnel. Thus, *Lipoma* does not suggest directly connecting first and second sets of microwave sources to opposing sidewalls for causing products to pass opposing first and second sets of microwave sources as claimed by Applicant.

Muller

Muller describes an octagonal tunnel wherein each of the microwave sources are positioned at oblique angles relative to the travel of products. The octagon tunnel with obliquely angled facets and spiral oblique microwave waveguides are provided for a very specific purpose. Specifically, *Muller* is constructed to facilitate "sufficiently good decoupling" (Col. 2, line 29). The decrease in microwave coupling is intentionally obtained to increase the randomization and uniformity of microwave energy in the *Muller* octagonal tunnel.

THE PRIOR ART DOES NOT SUGGEST APPLICANT'S INVENTION

Applicant's claimed invention is directed to a conditioning tunnel which is quadrilateral and includes microwave sources directly connected to opposing sidewalls positioned to emit microwaves at right angles to the axis of advance of products. This construction is not suggested in the prior art.

Muller is the only prior art which provides any suggestion concerning the desirability for the cross-section of the conditioning tunnel or the positioning of microwave sources. However, *Muller* teaches that the conditioning tunnel should be octagonal and that the microwave sources be positioned at oblique angles to the advance of products. This is directly contrary to what is claimed by Applicant. Only *Lipoma* states that the tunnel may be rectangular, though *Lipoma* does not provide any teaching as to the beneficial relationship between the shape of a tunnel and the microwave energy. Instead, *Lipoma* states that any shape is permissible, clearly suggesting against a quadrilateral tunnel which is more expensive and less capable of handling high pressure than a circular cross-sectioned tunnel. Moreover, there is no suggestion within the additional cited references concerning the connection or positioning of microwave sources in any manner.

Moreover, as explained in greater detail in the Supplemental Declaration of Jeffrey Mackay Paragraphs 9 - 12 and 19 - 28, there is no suggestion within the prior references to modify *Muller* to include a quadrilateral cross-section or to modify the microwave sources to be at an angle other than oblique. Modification of the *Muller* tunnel in such a manner would make the tunnel unsatisfactory for its intended purpose of decoupling microwaves to decrease hot and cold spots. "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." Ex parte Lewin, et al., 2010 WL 1026930 (B.P.A.I. 2010), citing In re Gordon, 733 F.2d 900, 902 (Fed. Cir. 1984). See also MPEP § 2143.01[V]. Also, "[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." Id., citing In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994); Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc., 73 F.3d 1085, 1090 (Fed. Cir. 1995). It is not necessary to prove that any reference is inoperable: it is sufficient to show that an artisan would be discouraged from following a reference.

Thus, the only teachings for a specific tunnel configuration and microwave source angle position is directly contrary to Applicant's claimed invention. Because the prior art does not suggest Applicant's invention of Claim 4, this claim is believed allowable. Furthermore, because

Claims 5 and 6 depend from an allowable claim, these claims are also believed allowable.

CONCLUSION

Claims 4 - 6 and 15 - 20 are believed to be condition for allowance and notice thereof is respectfully requested. If the Examiner disagrees, it is requested that the Examiner call the undersigned to discuss prior to issuing an additional Office Action.

Respectfully submitted,

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